



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**03.07.2002 Bulletin 2002/27**

(51) Int Cl.7: **H04L 27/26, H04B 3/54,  
H04H 1/04**

(43) Date of publication A2:  
**28.06.2000 Bulletin 2000/26**

(21) Application number: **99307793.2**

(22) Date of filing: **04.10.1999**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE**  
Designated Extension States:  
**AL LT LV MK RO SI**

(72) Inventors:  

- Greenwood, John Christopher  
Wiltshire SN15 4LX (GB)
- Rickard, Robin Paul  
Harlow, Essex CM20 2AD (GB)

(30) Priority: **22.12.1998 GB 9828373**

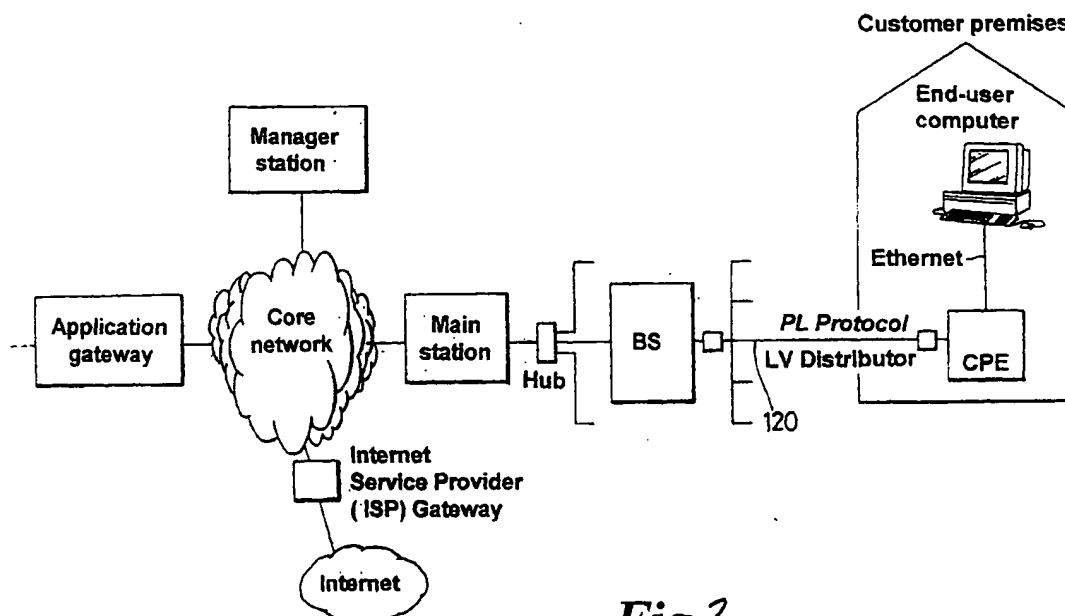
(74) Representative: **Bewley, Ewan Stuart et al  
Nortel Networks  
Intellectual Property Law Group  
London Road  
Harlow, Essex CM17 9NA (GB)**

(71) Applicant: **Nortel Networks Limited  
Montreal, Quebec H2Y 3Y4 (CA)**

(54) **Multicarrier transmission on power lines**

(57) An Orthogonal Frequency Division Multiplexed (OFDM) communications system comprising a communication station. The communications station includes a an OFDM transmitter comprising an encoder for encoding

digital information, a transmission means for transmitting said information and a sub-band allocation means arranged to allocate sub-bands by selecting from a set of pre-determined parameters.



**Fig 3**



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 7793

BEST AVAILABLE COPY

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 02, 29 February 1996 (1996-02-29) & JP 07 273741 A (TOSHIBA), 20 October 1995 (1995-10-20) * abstract *	1-7, 10-12	H04L27/26 H04B3/54 H04H1/04
X	--- EP 0 762 701 A (ADVANCED DIGITAL TELEVISION BROADCASTING LABORATORY) 12 March 1997 (1997-03-12) * figure 8 *	1-7, 10-12	
X,P	--- HARA, BUDSABATHON: "Spread spectrum-based subcarrier recovery method for multi-carrier code division multiplexing system" EUROPEAN TRANSACTIONS ON TELECOMMUNICATIONS, vol. 10, no. 4, July 1999 (1999-07), pages 369-376, XP000866689 Milan, IT ISSN: 1124-318X * figure 3 *	1-7, 10-12	
X,P	--- EP 0 939 527 A (SONY) 1 September 1999 (1999-09-01) * abstract; figure 4 *	1-7, 10-12	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			H04L H04B
<del>The present search report has been drawn up for all claims</del>			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>19 February 2002</b>	Examiner <b>SCRIVEN P.</b>
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

EPO FORM 1503 03.02 (P04C01)



European Patent  
Office

**BEST AVAILABLE COPY**

Application Number  
EP 99 30 7793

### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-7,10-12



European Patent  
Office

**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
**EP 99 30 7793**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

**1. Claims: 1-7, 10-12**

Inclusion of symbols with larger  
than normal guard intervals

**2. Claims: 8, 9, 13-16**

Sub-band allocation by choosing  
between predetermined sets of  
parameters

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 7793

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-02-2002

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
JP 07273741	A	20-10-1995	NONE		
-----					
EP 0762701	A	12-03-1997	JP	2802255 B2	24-09-1998
			JP	9135230 A	20-05-1997
			EP	0762701 A2	12-03-1997
			US	5818813 A	06-10-1998
-----					
EP 0939527	A	01-09-1999	EP	0939527 A1	01-09-1999
-----					

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82